REPORT

ON

THE DEPARTMENT

OF

AGRICULTURE

BARBADOS

1921-22.

ADVOCATE CO. LTD.
Printers and Book-binders to the Government of Barbados.

1922.

IMPERIAL BUREAU
23 APR 1923
OF MYCOLOGY

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DEPARTMENT OF AGRICULTURE

BARBADOS,

FOR THE FINANCIAL YEAR 1921—22.

STAFF.

Director of Agriculture	JOHN R. BOVELL, I.S.O., F.C.S.
Assistant Director	B. A. BOURNE, B. SC.
First Field Assistant	M. O. PROVERBS
Second Field Assistant	C. O. HAYNES
Assistant in Charge of Nurseries ...	C. B. FOSTER
Chief Clerk	H. O. RAMSEY
Second Clerk	G. D. RAMSEY
Third Clerk	B. A. NICCOLLS

ESTABLISHMENT.

During the year under review Mr. John R Bovell, Director of Agriculture, was absent from the island from June 22 to July 19, 1921. In his absence, Mr. B. A. Bourne, B. Sc., Assistant Director, acted as Director of Agriculture. On April 8, Miss B. A. Niccolls, Second Clerk, was granted six weeks vacation leave on account of ill health. As she was still unwell at the expiration of her leave, she tendered her resignation as from May 20, 1921. Miss Niccolls performed the duties of her office exceptionally well and her resignation was a distinct loss to the Department. On Miss Niccolls resigning, Miss G. E. Collymore was appointed as Second Clerk (Stenographer and Typist) on June 6, but unfortunately she was obliged to resign the appointment on July 31, owing to ill health. On Miss Collymore resigning, Mr. G. D. Ramsey, Third Clerk, was appointed Second Clerk, and on September 1, Miss V. Birkett was appointed Third Clerk on probation. Miss Birkett not proving sufficiently capable for the post, her appointment was terminated on November 30, and her place as Third Clerk filled on December 5, by Miss B. A. Niccolls, who had recovered from her illness. On January 11, 1922, Mr. H. O. Ramsey, Chief Clerk, was appointed Inspector under the Mosaic Disease (Eradication) Act, 1921 (1921—39) and Mr. C. B. Foster, the Assistant in Charge of the Nurseries, was appointed to act as Chief Clerk. It may be here mentioned that Mr. Foster was in 1911 Third Clerk and in 1913 Second Clerk to the Department of Agriculture. He left the Department on promotion to the Customs Department, whence he was promoted to other departments in the Barbados Government Service. On the Sugar Cane Experiment Station being started in Guadeloupe, he accepted an appointment at that Station, but owing to a severe attack of malarial fever he had to return to Barbados and was on February 2, 1921, appointed Assistant in Charge of the Nurseries at Codrington. On Mr. Foster assuming the duties of Chief Clerk, Mr. C. L. Davis was appointed on probation as Assistant in Charge of the Nurseries at Codrington.

EXPENDITURE.

	£ s. d.
Salaries	2,150 3 11½
Incidentals for sugar-cane, cotton and other experiments	583 1 11
Upkeep of Botanic Station	112 13 3
Fumigation of plants	1 3 0
Improving the breed of goats in the Island ... —	...
Pay and travelling expenses in connexion with sugar cane experiments	14 19 7
Purchase of apparatus, books, etc.	19 17 11
Exhibition	89 5 7
	£2,971 5 2½

RECEIPTS.

	£ s. d.
Plants in pots	52 3 1
Canes, cotton, cassava, yams, etc. grown on lands rented from Waterford Plantation	22 2 4
Sundries :—Packing cane plants, supplying mixture for spraying trees, etc.	26 4 11½
	£100 10 4½

REPAIRS TO BUILDINGS, ETC.

During the year under review, minor repairs were executed to the buildings at Codrington and to the office of the Department of Agriculture at Queen's Park, Bridgetown.

DISTRIBUTION OF PLANTS, CUTTINGS, SEEDS, ETC.

The receipts for the sale of plants, etc., for the year 1921–22 amounted to £100. 10. 4½. The Plants and seeds distributed locally and abroad for the year are as follows :—

PLANTS.

Bougainvillaea (Cherry Red)	28 p'ants
„ (Terracotta)	1 „
Breadfruit	11 „
Cassia grandis	4 „
Cassia javanica ... ... —	16 „
Casuarina	51 „
Cherry ... ... —	9 „
Cordia interrupta —	12 „
Ficus Benjamina	29 „
Fig	2 „
Grape fruit	2 „
Grape vine	19 „
Lime ... ... —	42 „
Mango (grafted)	81 „
Miscellaneous	70 „
Orange	3 „
Palms and Ornamental plants	324 „
Rose	274 „
Sapodilla	1 „
Shaddock	1 „
Star Apple	2 „
Sugar Apple	12 „

CUTTINGS, SEEDS, ETC.

Bengal beans ... —	15 lb.
Beans and peas	15 pkts.
Bougainvillaea (Purple)	500 cuttings.
Canavalia ... —	2 lb.
Cassava	500 cuttings.
Eddoes ... ... — ...	12 lb.
Elephant grass — ... ... — ...	2,050 cuttings.
Plumeria sp.	48 plants.
Sudan grass	600 cuttings.
Tripsicum laxum	200 „
Velvet beans	2 lb.
Yams	641 lb.

PLANTS ETC., IMPORTED AND DISTRIBUTED LOCALLY.

	lb.	oz.
Beet	1	12
Cabbage	1	6
Carrot	1	8
Egg Plant		2
Kohl Rabi		10
Lettuce	1	4
Onion*		12
Parsley		2
Tomato		10
Turnip		8

*4 oz of the above onion seed was imported from Teneriffe.

EXPERIMENTS WITH SUGAR-CANES.

As a separate report is issued dealing with sugar-cane, manurial and other experiments, there is no need to deal further with the activities of the Department of Agriculture in connection therewith in the Annual Report.

THE COTTON INDUSTRY.

The experiments for improving the quality and increasing the yield of lint of the varieties of Sea Island cotton grown in the island were continued during the year under review. These experiments, as has already been pointed out, are carried out in two series. In the first series, an effort has been made by the selection of the best formed and most vigorous plants giving heavy yields of good quality lint, to improve the strain of the Sea Island cotton originally obtained from the Sea Islands, but which had deteriorated owing to the want at one time of a suitable assistant for carrying out the work. In the second series, an effort has also been made in a similar manner to improve the native cotton which, so far, seems to be practically immune to most of the insect pests and fungoid diseases of the cotton plant. The method by which the selection work is carried out has been so often given in previous reports that it is unnecessary to reproduce it here. As has been previously mentioned, with the permission of His Excellency the Governor, the seeds of the specially selected strain of Sea Island cotton is now grown annually on the lands of the Government Industrial School and on the Lunatic Asylum Farm so that seed of a good strain might be available to cotton growers for planting purposes. This strain of cotton is now, owing to the fact that seeds from trees attacked by the leaf blister mite and other cotton pests are not now retained for planting purposes, however good they might be in other respects, practically free from the leaf blister mite and certain other diseases which at one time injuriously affected the yield, with the exception of course, of the cotton caterpillar. That a certain amount of success has attended these efforts may be judged from the yields obtained this year from cotton grown from the selected seed.

TABLE SHOWING AVERAGE YIELD OF SEED COTTON PER ACRE OBTAINED AT VARIOUS ESTATES, ETC.

Name of estate and parish.	Acreage planted.	Average yield of seed cotton per acre. lb.
Ruby, St. Phillip	16½	1,494
Mapps, „	15	(*a*) 1,400
Mangrove, „	17½	1,221
Dodds, „	9	(*b*) 1,194
Mapps, „	3	(*c*) 1,000
Bush Hall, St. Michael	5	1,640
Land rented by Department Agriculture from Waterford, St. Michael ...	1·9	1,561
Lunatic Asylum, St. Michael	8	(*d*) 892
The Rectory, St. Andrew	½	1,340

(*a*) Planted July 29, 1921.
(*b*) No. 1 field yielded : 1,554 lb. per acre.
No. 2 field yielded : 1,210 „
No. 3 field yielded : 818 „
(*c*) Planted November 28, 1921.
(*d*) At one time a number of the cotton plants were badly eaten by cotton caterpillars.

Since the above was written, I have received the following report from Messrs. Wolstenholme and Holland, Cotton Brokers of Liverpool, from which it will be seen that the quality of the cotton is also very satisfactory :—

Liver Chambers, Tithebarn St.,
Liverpool.
July 7, 1922.

J. R. Bovell, Esq.,
Barbados.

Dear Sir,—We consider the value and description of your cotton per s. s. "Scientist" to be this day as follows :—

Mark.	Quantity.	Description.	Value.	Classification, etc.
B W H	8	Barbados	30.00d with any demand.	Very bright, staple fine, long and regular.

We are,
Yours faithfully,
(Sgd.) WOLSTENHOLME & HOLLAND.

ALFALFA.

With the kind assistance of the Director of Agriculture of Bermuda a few growing plants of alfalfa were obtained for planting purposes. Two of the plants which survived produced seeds which were sown but which did not grow as vigorously as they should and, on an examination of their roots being made, it was found that no nodules were present. An application was, therefore, made to Dr, F. C. Harrison, Principal of the MacDonald College, Canada, for cultures of the necessary bacteria *Pseudomonas radicicola*, and he was good enough to send me some. On their arrival on March 17 last, the Assistant Director increased the bacteria by the usual methods of cultivation and inoculated a quantity of alfalfa seeds which, when sown, produced plantlets of abundant nodules. I would like to

place on record my appreciation of the assistance rendered by Dr. Harrison and his assistants who so kindly helped me in the matter.

CASSAVA EXPERIMENTS.

The experimental cultivation of the varieties of cassava obtained from different countries as well as with a Barbados seedling variety was continued during the year under review. It may be mentioned that owing to the drought which prevailed in 1921 it was considered advisable not to dig the cassava that year, and it was therefore allowed to remain until this year. The average weights obtained from the varieties are given in Table I.

TABLE I.

RESULTS OF EXPERIMENTS WITH CASSAVA.

Variety.	Mean results per acre for five years, 1914-1915 and 1916-1917—1919-1920. lb.	Results per acre for 1920-22. lb.
	Sweet Varieties	
Panama	7,705	3,341
Trinidad No. 2 ...	7,150	3,733
Trinidad No. 1 ...	6,715	3,822
Friendship	*4,281	3,724
Butterstick	...	3,600
	Bitter Variety.	
White Greenway ...	12,400	20,000
	Barbados Seedling.	
Barbados No. 101 ...	9,985	12,720

*For two years only.

EXPERIMENTS WITH ECONOMIC COLOCASIEÆ.

Experiments were again carried out this year with those varieties of economic Colocasieæ which have given the best results in the past. Table II contains the results obtained with the plants of the *Colocasia*, probably varieties of *Colocasia anti-quorum esculentum*, and Table III the results obtained with the *Xanthosomas*.

TABLE II.

RESULTS OF EXPERIMENTS WITH ECONOMIC COLOCASIA.

GROWN FROM CORMELS.

Name.	Weight of Corms per acre. lb.		Weight of Cormels per acre. lb.	
	Mean for 5 years (1915-16—1919-20).	1921-22	Mean for 5 years (1915-16—1919-20).	1921-22.
White Seal Top Eddoe	[1] 1,587	1,315	4,660	4 039
Red „ „	[11] 5,184	485	6,048	1,064
White Eddoe ...	...	1 344	...	4,864
Dasheen	...	650	...	1,982

[1] For four years only as in 1917-18 corms were used for planting purposes, owing to the fact that most of the cormels had rotted by the time the planting season came round.

[11] For one year only.

TABLE III.

RESULTS OF EXPERIMENTS WITH ECONOMIC XANTHOSOMAS

Name.	Weight of Corms per acre, lb.		Weight of Cormels per acre. lb.	
	Mean for 5 years (1915-16—1919-20)	1921-22	Mean for 5 years (1915-16—1919-20)	1921-22
Barbados Roasting Eddoe ...	4,520	4,844	4,902	6,305
Rolliza	4,350	4 596	5,902	5,331
Genebrilla	3,946	4,184	4,973	5,002
Nut Eddoe ...	3,042	3,156	4,546	3,983

EXPERIMENTS WITH VARIOUS LEGUMINOSAE.

The cultivation of the various leguminosae, both for edible purposes and for green manuring, was again continued this year and seeds of different varieties were distributed to planters. Unfortunately, owing to the acting Assistant in Charge of the Nurseries not weighing correctly the product of the different varieties it is impossible to give a table this year showing the various yields. The following, however, is a list of the leguminous plants with which the experiments were conducted: Bengal Bean, Velvet Bean, Canada Bean No. 1, Canada Bean No. 2, Bean from Mr. Layne, Bush Bean, Six Weeks, Natal Bean, Grenada Broad Bean, Martinique Pea, Cocal Pea, Porto Rico No. 4 (white), Porto Rico No. 4 (black), Porto Rico Pea (white), Porto Rico Pea (black), New Era Pea, Whipporwill Pea, Clay Pea, Tonquin Pea, St. Vincent Bonavist, Egyptian Bonavist (running) and Egyptian Bonavist (upright).

YAMS.

Experiments with yams were also conducted during the period under review and the results, which were effected by the drought, are given in Table IV. A number were as usual distributed for planting purposes.

TABLE IV.

RESULTS OF EXPERIMENTS WITH YAMS.

Name.	No. of years under experiment.	Weight per acre, lb.	
		Mean for period under experiment.	1921-22
Femelle	5	12,273	5,142
Bottle Neck Lisbon	5	12,000	11,813
Red Yam	5	11,908	4,128
Blanche Femelle	5	10,265	4,560
Crop	5	6,015	5,760
White Yam	5	5,501	6,000
Lisbon	4	13,042	8,410
Antigua	4	6,543	4,700
Oriental	3	9,896	5,760
Seal Top	3	4,980	4,710
Horn	2	6,012	4,474
Buck	1	7,751	7,614

ONIONS.

Through the kind help of some of the editors of the local newspapers an offer was, as usual, made to import onion seed from Messrs. Hamilton & Co., of Teneriffe,

for persons desirous of obtaining it, but orders were received only for three ounces of the white and one of the red variety. The seed arrived in good condition and the Director of Agriculture, who purchased some of it, found the germination excellent, but owing to the drought the yield was not as satisfactory as usual.

LIVE STOCK.

As has been mentioned in previous reports, an effort is being made to reduce the infantile mortality which is exceptionally high among the children of the peasants in Barbados by improving the milking capabilities of their goats by stationing in different districts of the island bucks of improved breeds. At the present time there are four such bucks stationed at the following places:—Seawell, Christ Church; Bayley's and the Government Industrial School, St. Philip; and Bissex Hill, St. Joseph. Recently, these animals have been added to by another pure bred Saanen buck of which the Superintendent of the Government Industrial School has been good enough to take charge. Later on, it is hoped to be able to obtain some pure-bred ewes. If this can be realised, it should add greatly to the benefit at present accruing to the peasants, since there will be better animals from which to breed.

ARBOR DAY.

Owing to the prolonged drought which necessitated a reduction of the water supply by the Water Department, it was impossible to grow plants for distribution on last Arbor Day. At the time the water supply was curtailed, there were about fourteen hundred plants which died and had to be thrown on the compost heap.

HERBARIUM.

Owing to the extra work caused by the attacks of the root borer (*Diaprepes abbreviatus*, Linn), the brown hard-back (*Phytalus smithi*, Arrow.) and the mosaic disease of the sugar-cane, it was practically impossible to do much work in the way of collecting plants for the herbarium.

LOCAL AGRICULTURAL SHOW.

This year the Local Agricultural Show for peasant proprietors, children of the elementary schools and others was held on Wednesday, December 7, at the Belle plantation, St. Michael, kindly lent for the purpose by Hon. G. Laurie Pile, M.L.C., the Attorney. There were 446 prizes offered amounting to £51. 15s. 0d. for exhibits of young oxen, milch cows, small stock, vegetables, fruit, Sea Island cotton, budded citrus and grafted mango plants, and for the performance of various agricultural operations, etc. This year four prizes were offered for the best essays on the cultivation of yams, stating how the land should be prepared, manured, the cuttings made, treated and planted; how the crop should be dug, packed, etc., and whether in the writer's opinion any subsidiary crops should be grown between the rows of the yams and, if so, what crops and where should they be planted. The first prize of $2.00 was awarded to Aubrey Alleyne, St. Giles Boys' School; boys from the same school gaining the other three prizes, viz. V. Worrell, second prize; R. Maxwell, third prize and O. Barnes, fourth prize. Seeds of the various vegetables such as beet, cabbage, carrots, khol rabi, lettuce, onion, etc. usually cultivated in Barbados were, as usual, imported and with the kind assistance of the Committee of Management distributed free of cost to peasants, small proprietors and teachers for the children of the elementary schools. The Education Board was good enough to contribute a sum of £5. 7s. 10½d. towards the purchase of this seed. This year the exhibits by the elementary school children far excelled those at previous shows, both in point of number and quality. There were 122 exhibits in pots and 269 collections of vegetables representing a total of 391 exhibits as against 381 last year, and 127 prizes were awarded them as against 115 the previous year. The 127 prizes were awarded to the children of thirteen of the elementary schools. This year the Committee of Management offered 56 prizes in Class VIII for various agricultural operations such as digging cane holes, forking, draining land, making banks and sweet potato beds, etc. In Class IX prizes were offered to girls of the elementary schools for the performance of such agricultural operations as they were able to perform. This year again the Misses O'Brien kindly offered special prizes for articles of clothing made from flour sacks, and it is gratifying to have to record that a large number of articles were sent in. In class X prizes were awarded to the Head Teachers of schools who had the best kept school garden and the four prizes were won by Mr. J. R. Bailey, Southborough Boys', first prize; Mr. E. G.

Smithwick, Mount Hilloby Combined, second prize ; Mr. O. Walcott, St. Joseph Church Boys', and Mr. L. T. Gay, Welches Combined, fourth prize. The following masters were awarded prizes for agricultural work performed by the children of their schools, viz :—Mr. F. A. Williams, St. George's Church Boys' ; Mr L. T. Gay, Welches Combined, Mr. J. R. Bailey, Southborough Boys', and Mr. O. Walcott, St. Joseph Church Boys.' Special prizes were again offered this year for the greatest number of boys from any elementary school entered for agricultural work. Prizes were awarded as follows :—Mr. L. C. Moore, St. Augustine's Boys' first prize ; Mr. A. O. D. Crichlow, Mt. Tabor Boys', second prize ; Mr. W. Ryer, St. Giles' Boys,' third prize and Mr. H. M. Belle, St. Stephen's Boys', fourth prize. The attendance of visitors was as usual large. His Excellency the Governor was present during the early part of the day and after a round of inspection left to attend another engagement. In the afternoon the Hon. W. E. Jackson, C.M.G., Colonial Secretary, very kindly, in the absence of the Governor, undertook the distribution of the prizes. After the distribution of the prizes the Director of Agriculture on behalf of those present and himself thanked Mr. Jackson for being so good as to distribute the prizes He also, on the behalf of the Committee of Management and the Department of Agriculture, thanked the Hon. G. L. Pile, M.L.C. for allowing the Show to be held at the Belle Plantation and the Manager of the estate and his staff for all the help they had rendered,

The Revd. J. R. Nichols drew attention to the progress that had been made by these Shows during the last ten years and commented very favourably on the exhibits. On behalf of the Education Board he begged to thank those teachers who had done such good work in the school gardens during the past year.

CANADIAN EXHIBITION.

Owing to the unsettled conditions which have prevailed of recent years, the Permanent Exhibition Committee decided that it was undesirable to take part in the National Exhibition held annually at Toronto.

INSPECTION AND FUMIGATION OF SEEDS. PLANTS, ETC.

For the year ending March 31, 1922, 223 consignments of plants and seeds other than cotton seed were examined. Of these, eleven packages of growing plants and cuttings had to be fumigated or disinfected, and twenty-one packages of plants and eighty-one cane cuttings had to be destroyed. During the year twenty-four consignments of cotton seed amounting to 23,170 bags were fumigated.

INSECT PESTS AND FUNGOID DISEASES, ETC.

As has been mentioned in previous reports, considerable attention has always been paid to the various insect pests and fungoid diseases attacking the sugar-cane and other crops. During the period under review, the Assistant Director of Agriculture, as will be seen from his report, has spent considerable time in working on these pests, particularly the root disease of the sugar-cane which is so fully dealt with by him, that there is no necessity for me to dwell on the subject. Mr. Bourne is, I think, to be highly commended for the efficient manner in which he has carried out the work in connection with the root disease.

In October 1920, Mr. R. C. McConnie, of Porto Rico, who was then in Barbados, was good enough to accompany me to a small plot of peasant's canes at Bank Hall where he had noticed some which he thought were attacked by the mosaic disease, and on examination both he and I were of the opinion that it was this disease As this was at the beginning of the planting season, I at once wrote a letter to a number of the local newspapers calling the attention of the planters to the matter, suggesting that all cuttings for planting purposes should be taken only from canes free from the disease and that where the planters were in any doubt as to whether the canes from which cuttings were to be made were attacked or not they should submit specimens to the Director of Agriculture for examination. The matter was also immediately reported to His Excellency the Governor and the Assistant Director deputed to examine and report on the canes in the neighbourhood of those found to be infected. This he did for some time and found infected canes only in the parish of St. Michael.

I next suggested to His Excellency the Governor the desirability of appointing a Commission to go carefully into the matter and to report what they thought

best to be done for eradicating the disease. On January 20, 1921, the Commission was appointed and their report was submitted to His Excellency the Governor on March 2, 1921, and laid before the Legislature on June 7, 1921, when the Act suggested by the Commission was passed with certain alterations. Owing, however, to the difficulty of getting the report printed at once, some weeks elapsed before it was done. On November 24, 1921, five Commissioners were appointed to carry out the provisions of the Act and on January 11, 1922, an Inspector and a Secretary were appointed. Shortly after the appointment of the Inspector, it was found that the disease had spread so rapidly about the island that the Legislature was asked by the Governor in-Executive Committee, at the request of the Commissioners, to provide for the payment of two assistant Inspectors so that the percentage of infection of the disease might be ascertained before May 31, after which date, according to the Act, no canes could be destroyed. It is with much regret I have to report from the result of the examination that the disease at present exists practically all over the island.

REPORT OF THE ASSISTANT DIRECTOR OF AGRICULTURE ON THE ENTOMOLOGICAL AND MYCOLOGICAL WORK CARRIED OUT DURING THE SEASON UNDER REVIEW.

During the period under review the writer was absent on ten days sick leave from November 21st to December 1st.

The work with insect pests and fungoid diseases, etc. is summarised under the following headings :—

(1) Inspection of imported plants and seeds and the fumigation of cotton seed

(2) Upkeep of collections.

(3) Introduction of *Pseudomonas radicicola*, the symbiotic nitrogen-fixing organism associated with the root nodules of alfalfa (*Medicago sativa*).

(4) Investigation of insect and fungoid attacks reported or observed.

(5) Researches on the Root-Disease of Sugar-Cane.

INSPECTION OF IMPORTED PLANTS AND SEEDS AND THE FUMIGATION OF COTTON SEED

Rigid enforcement of the Orders made by the Governor-in-Executive Committee from time to time, providing for the prevention of the introduction of exotic insect pests and plant diseases, has been carried out during the period. Of 223 consignments, eleven packages of growing plants and cuttings had to be fumigated or disinfected, twenty-one packages of plants and eighty-one cane cuttings had to be destroyed.

Twenty-four consignments of cotton seed amounting to 23,170 bags, imported for the extraction of oil, were fumigated with sulphur dioxide generated by the Clayton Disinfector mounted on the Barge Hygeia. In addition, thorough inspections were made of these cargoes of cotton seed before admission of the same was permitted.

UPKEEP OF COLLECTIONS.

The entomological collection was renewed in many instances with fresh specimens and, in addition, two lots of unidentified specimens were forwarded to Dr. G. A. K. Marshall, of the Imperial Bureau of Entomology, for determination. The following is a list of the insects and mites added to the collection since March 31st, 1920.

INSECTA (Insects).

ORDER—HYMENOPTERA (Bees, Wasps, Etc.)

FAMILY—BRACONIDAE.

Apanteles sp.
Bred from leaves of *Cordia interrupta*, attacked by a leaf-miner.

FAMILY—CHALCIDIDAE (Chalcid "flies").

Tetrastichus hagenowi, Ratz.
Parasitic on eggs of cockroach, (*Periplaneta americana*).

Achrysocharis sp.
Bed from leaf-miner of sweet potato (*Solum tuberosum*).

(SUB FAMILY EULOPHIDAE).

Zagrammosoma sp.
Bred from leaves of *Cordia interrupta* attacked by a leaf-miner.

Encarsia sp.
Bred from pupae of *Aleurodes goyabae.*

Aspidiotiphagus citrinus, Craw.
Bred from *Aulacaspis rosae* infesting leaves of mango.

Diaulinopsis sp. n.
Bred from leaf-miner of cabbage.

FAMILY—ENCYRTIDAE.

Habrolepis sp.
Parasitic on *Hemiberlesia longispina*, Morg.

FAMILY BETHYLIDAE.

Perisierola nigrifemur, Ashm.
Parasitic on *Pyroderces coriacella.*

FAMILY FORMICIDAE.

Solenopsis corticalis, For.
Attacking eggs, larvae and pupae of *Lachnosterna (Phytalus) smithi*, under experimental conditions.

Camponotus (Myrmosphincta) sexguttatus F., *var. grenadensis*, For.
Male and female present, worker only known previously. From Codrington.

Rhizomyrma marshalli, Crawley.
The female was previously unknown. From soil around base of cane stool.

FAMILY—SCOLIIDAE.

Elis sp.
Not in British Museum. From St. Andrews Parish.

ORDER—COLEOPTERA. (Beetles).

FAMILY—HYDROPHILIDAE.

Temnopterus sp.
Taken from exhibits at Local Show in 1919.

FAMILY—CERAMBYCIDAE.

(SUB—FAMILY—LAMIIDAE).

Leptostylus posticalis, Gahn.
Taken from borings in branch of *Hura crepitans.*

FAMILY—TENEBRIONIDAE.

Alphitobius laevigatus, Fab.
From cotton seed from Puerto Columbia after fumigation.

FAMILY—CURCULIONIDAE.

Rhyssomatus nigerrimus, Fhs.
Taken from collection at Local Show at St. John.

FAMILY SCOLYTIDAE.

Coccotrypes thrinacis, Hopk.
Boring in seeds of *Thrinax radiata* and *Thrinax argentea.* New to British Museum.

Hypothenemus sp.
Boring in twigs of *Mangifera indica.*

ORDER - DIPTERA.

FAMILY—SCATOPSIDAE.

Scatopse sp
Collected from soil containing bulbous plants (Liliaceae) imported from United Kingdom.

FAMILY—AGROMYZIDAE.

Agromyza sorosis, Will.
Bred from young leaves of *Zea Mais* attacked by a leaf-miner.

FAMILY—TACHINIDAE.

Ormia depleta, Wied.
Caught in house.

ORDER—LEPIDOPTERA.

FAMILY—NOCTUIDAE.

Monodes agrotina, Gn.
Bred from cotton leaves and stems kept at Laboratory during the close season.

Meridyrias progenies, Gn.
Caught at light in house.

Bagisara subusta, Hb.
Bred from larva feeding on *Sida glomerata*.

FAMILY—LAVERNIDAE

Pyroderces coriacella, Snell.
Bred from larva in cotton boll kept during "close season" at laboratory

FAMILY—GELECHIIDAE.

Dichomeris melissia. Wlsm.
Bred from larva on leaf of sweet potato (*Solanum tuberosum*)

Sitotroga cerealel a, Ol.
Bred from imphee seed (*Andropogon sorghum saccharatus*)

Pigritia troctis, Meyr. sp. n.
Bred from cotton leaves and stems during "close season."

FAMILY—PYRALIDAE.

Galleria mellonella, Linn.
Bred from larvae found in cell of honey comb,

Corcyra cephalonica, Stt.
From bags of cotton seed in hold of steamer.

Hymenia perspectalis, Hubn.
Caught at light.

Hymenia fascialis, Cram.
Caught in field plot of flowering alfalfa. (*Medicago stativa.*)

Lamprosema indicata, Fab.
Caught at light.

Crocidomera, sp
Bred from seed pods of *Swietenia mahogoni*, L.

FAMILY—BLASTOBASIDAE.

Blastobasis grenadensis, Wlsm.
Bred from cotton leaves and stems kept during "close season."

ORDER—HEMIPTERA.

SUB ORDER—HETEROPTERA.

FAMILY—TINGIDIDAE.

Corythaica monacha, Stal.
Attacking leaves of Egg-plant (*Solanum melongena.*)

Corythuca gossypii, F,
Larva attacking leaves of *Hibiscus esculentus* and probably belonging to this species.

FAMILY—PENTATOMIDAE.

Mormidea ypsilon, L.
From insect exhibits at Local Show, St. James.

FAMILY—ANTHOCORIDAE.

Cardiastethus elegans, Uhler.
Bred from cotton leaves and stems during "close season."

FAMILY—REDUVIIDAE.

Nabis capsiformis, Germ.
Caught in field plot of flowering alfalfa (*Medicago sativa*).

FAMILY—CAPSIDAE.

Megacoelum rubrinerve, St.
Caught in field plot of flowering alfalfa (*Mediago sativa*).

SUB-ORDER—HOMOPTERA.

FAMILY—JASSIDAE.

Empoasca, sp.
From leaves of English lettuce (*Lactuca sativa*).

FAMILY—COCCIDAE.

Geococcus radicum, Green.
On roots of shaddock (*Citrus decumana*)

FAMILY—APHIDIDAE.

Sipha flava, Forbes.
On leaves of sugar cane.

ORDER—THYSANOPTERA.

FAMILY—THRIPIDAE.

Corynothrips stenopterus, Williams.
Attacking leaves of cassava (Manihot sp.)

ORDER—ISOPTERA.

FAMILY—TERMITIDAE.

Eutermes sp.
In farmyard manure and boring in wood of pigeon coop. Not in British Musuem.

Eutermes morio, Lath.
From base of cane stalks doing much damage.

ACARINA. (Ticks and Mites.)

FAMILY—TYROGLYPHIDAE.

Tyroglyphus sp.
Attacking seeds of Indian corn (*Zea Mais*) and also the larvae of *Lacknosterna* (*Phytalus*) *smithi*, Arrow, kept in tins for experimental purposes.

FAMILY—ORIBATIDAE.

Genus unknown.
These mites were found on stem of shaddock (*Citrus decumana*) associated with *Chionaspis citri*. The mites of this family are vegetable feeders but probably not of economic importance.

Several specimens of local fungi have been added to the mycological herbarium and in addition many interesting and important ones have been isolated and maintained in pure culture.

The upkeep of the card catalogue of West Indian insects injurious to plants and animals with remedial measures, as well as fungi and fungicides, has been added to in many instances when information in various bulletins, etc, became available.

INTRODUCTION OF *PSEUDOMONAS RADICICOLA*, THE SYMBIOTIC NITROGEN-FIXING ORGANISM ASSOCIATED WITH THE ROOT NODULES OF ALFALFA (*MEDICAGO SATIVA*).

Through the courtesy of Dr. F. C. Harrison, Principal, MacDonald College Quebec, Canada, and Mr F. L. Drayton, Plant Pathologist, Division of Botany, Department of Agriculture, Central Experimental Farm, Ottawa, Canada, a pure culture of *Pseudomonas radicicola*, the symbiotic nitrogen-fixing organism associated with the root nodules of alfalfa, was obtained with a view of establishing it in alfalfa fields by inoculating the seed before planting.

This beneficial organism was found to be absent when alfalfa which had recently been introduced into the island was grown at the Experiment Station and so efforts were at once made to effect its introduction. Alfalfa seed inoculated with the pure culture obtained from Canada produced abundant root nodules within a month.

Those planters who are desirous of introducing this valuable leguminous plant on their estates are strongly advised to make application to the Department of Agriculture for pure cultures of the root nodule organism together with directions for its use.

INSECT ATTACKS REPORTED OR OBSERVED

SUGAR-CANE.

The yellow aphis *Sipha flava*. Forbes, was discovered in another part of the island far separated from the locality where it was first discovered during the previous year. The direct damage done, however, did not appear to be serious.

The moth borer *Diatraea saccharalis*, Fabr., has caused considerable loss during the period in the dry districts of the island. The egg parasite *Trichogramma minutum*, Riley, although found in these districts does not appear to be able to cope with the pest under the existing conditions. Special care should be exercised in selecting cuttings free from this pest and a close watch kept for the egg batches which should be bred out in tins in the field surrounded by water so as to drown any unparasitized larvae and yet liberate the useful parasites to continue their good work.

There has been no improvement in the situation as regards the prevalence of the root borer *Diaprepes abbreviatus*, Linn, and the brown hard-back *Lachnosterna smithi*, Arrow. Both pests did severe damage in several instances.

The "cane fly" *Stenocranus saccharivorus* was not observed during the period under review.

COTTON.

This crop remains free from the attack of any new pest. Leaf blister mite *Eriophyes gossypii*, Banks, was hardly to be seen during the major part of the growing season of the plants, but in some instances where a second picking was attempted, the pest was reported to be quite severe. If planters would only eradicate at an early stage such plants as are found attacked, this pest should be kept well under control.

MISCELLANEOUS TREES, PLANTS, ETC.

By far the most troublesome tree pest was the Cossid moth *Duomitus punctifer*, Hamp. The larvae of this moth have been observed to cause either the death of large branches or the entire tree in the case of whitewood (*Tecoma leucoxylon*), avocado pear (*Persea gratissima*,) sapodilla (*Achras sapota*), Inga (*Pithecolobium saman*) and soap-berry (*Sapindus saponaria*). The method of treatment has been outlined in previous annual reports.

The following gives a list of the main plants and trees found infested with various minor pests during the year:—

Scientific Name.	Common Name.	Insects Present.
Mangifera indica	Mango	*Aulacaspis rosae*, Bouché and *Vinsonia stellifera* (scales). *Cryphalus* sp. (twig boring beetle).
Citrus medica var. acida	Lime	*Coccus viridis*, Green, *Lepidosaphes beckii*, Newm. (scales).
Coffea sp.	Coffee	*Coccus viridis*, Green (scale).
Dioscorea sativa	Yam	*Pseudococcus citri*, (mealy bug).
Malpighia glabra	Cherry	*Pulvinaria pyriformis*, (scale) and *Orthezia praelonga*, (The Croton bug).
Sapindus saponaria	Soap Berry	*Ibidion quadrimaculatus*, (boring in small branches).
Citrus decumana	Shaddock	*Chionaspis citri*, Comst. (scale).
Ficus nitida	Evergreen	*Phryneta verrucosa*, (boring in branches).
Thrinax sp.	Fan palm	*Aleyrodicus cocois*, Curtis.
Eugenia sp.	Myrtle	*Ceroplastes cirripediformis*, Comst. and *Coccus* sp. (scales).

Hibisus sp.	Hibiscus	*Saissetia nigra* (Nietn).
Psidium guava	Guava	*Coccus viridis*, Green, and *Pulvinaria ficus*, Hamp. (Scales).
Cyclas revoluta	Sago Palm	*Saissetia hemisphaerica*, Targ. (Scale).
Rhoea sp.	...	*Pseudococcus longispinus*, Targ. (Mealy bug).
Ixora sp.	...	*Orthezia praelonga*, Dougl. (The Croton bug).
Coleus sp.	...	*Orthezia insignis*, Dougl. (The Lantana bug).
Panax sp.	...	*Coccus viridis*, Green. (scales).
Rosa spp.	Rose	*Chrysomphalus dictyospermi*, Morg. (scale)

FUNGOID ATTACKS REPORTED OR OBSERVED.

SUGAR-CANE.

Because of the serious losses which have been attributed to "root disease in the past and because the disease is without question one of the most serious ones affecting the sugar cane crop of this island at the present time, the writer has devoted a very considerable part of his time to field and laboratory work in this connection. As a separate bulletin entitled "Researches on the Root Disease of Sugar Cane" will be issued containing a complete record of the work carried out during the past year on this problem, it seems desirable only to give in this report the summary of this work together with certain recommendations for the treatment of the disease.

SUMMARY OF THE WORK ON SUGAR CANE ROOT DISEASE.

1. Root disease is not confined to any specific type of soil, but occurs both on typical black as well as red soils.

2. Under the existing agricultural methods plant canes do not appear to be attacked by the disease to a noticeable extent, but ratoon canes seem to be especially susceptible under certain conditions.

3. Either *Rhizoctonia solani* or *Rhizoctonia palida* has been found associated with freshly diseased and dying cane roots in typical cases of root disease. In advanced stages of the disease the tissues of the basal portions of the stem are also infested by one or the other of these fungi. Sometimes, in addition to one of the above fungi, *Fusarium* sp. is also found.

4. *Marasmius sacchari* has never been isolated from freshly diseased and dying cane roots, but only from dead ones,

5. Inoculation experiments have proved conclusively that *Rhizoctonia solani* and *Rhizoctonia palida* are both parasitic and each can cause root decay and reproduce the typical symptoms of root disease, including stunting of the plant and yellowing of the leaves, while control plants under the same conditions show no such pathological symptoms.

6. Inoculation experiments with both *Marasmius sacchari* and *Fusarium* sp. have given negative results.

7. The reaction of the medium between—15° and +30° Fuller's scale has no effect on the growth of *Rhizoctonia solani*. On the other hand *Rhizoctonia palida* is affected by the reaction of the medium between these two ranges and grows best between + 25° and + 30° Fuller's scale with comparatively good growth between + 5° and + 20° Fullers scale and fair growth between −15° and 0° Fuller's scale. Both fungi however appear to be adapted to quite wide ranges in medium reaction.

8. Both *Rhizoctonia solani* and *Rhizoctonia palida* are cultivable on most artificial media, but of those tried they gave the best growth on Diaprepes grub agar, glucose peptone beef agar, glycerine peptone beef agar, sweet potato agar and corn meal agar.

9. Conditions of high soil temperature combined with lack of moisture appear to favour the disease in the field.

RECOMMENDATIONS.

1. The planting of varieties found to be resistant to the disease.

2. The planting of healthy cuttings from plants which are free from the disease.

3. The suitable rotation of crops so that the parasitic root fungi are forced to live saprophytically, thus reducing their virulence.

4. Proper tillage and drainage so as to provide good soil aeration and "root room," thus aiding the plants to maintain their maximum vitality.

5 The proper trashing of fields of young plant and ratoon canes in order to conserve soil moisture and keep down the temperature.

The usual fungi *Colletotrichum falcatum* Went. and *Cephalosporium sacchari*, Butl. associated with Red Rot; *Leptosphaeria sacchari* van, B. de H. causing the Ring Spot of the leaves; *Thielaviopsis paradoxa* (De Seynes J. Hohn) causing the pineapple disease and *Cercospora vaginae*, Kruger, causing a red spot of the leaf sheath were observed on several occasions. In those localities where the moth borer was very prevalent the fungi associated with Red Rot did considerable damage.

During the period under review, a new fungoid leaf disease known as eye spot made its appearance in a 4½ acre field of B.H. 10(12) canes towards the centre of the island. The infected leaves first show small red spots which spread rapidly, chiefly in a longitudinal direction, and especially toward the tips of the leaves and may run together to form long streaks. The centres of the spots soon change to a dirty straw colour around which the margins remain red for a time and then change to dark brown. In advanced stages of serious affection only a few linear, irregular yellowish-green areas are left, the remaining leaf surface being occupied by the eye spots. The field in question was so seriously attacked that even from a distance it presented a blasted appearance.

The fungus associated with the eye spot disease was isolated in pure culture and it agreed with the description of *Helminthosporium sacchari*, Butl. The fungus produces spores on sweet potato agar which when mature, however, are much longer than those described by Dr. Butler, measuring quite often 75 microns.

Associated with the diseased spots the fungus *Colletotrichum falcatum*, Went, was quite often found and was isolated in pure culture and identified. The writer believes that this latter fungus was largely responsible for the very rapid death of the leaves subsequent to the attack by *Helminthosporium sacchari*.

Another fungus not hitherto recorded for Barbados and commonly found associated with dead and dying cane leaves and leaf sheaths was that of *Rhizoctonia grisea*, Matz. (*Sclerotium griseum*, Stven). The fungus was isolated in pure culture by the writer from single sclerotia taken from a dying cane leaf-sheath of the variety Ba. 6032. Mr. J. Matz, Plant Pathologist of the Insular Experiment Station, Porto Rico, states that this organism is capable of living on and destroying tender cane leaves as well as roots and is commonly found on sugar cane in Porto Rico.

MISCELLANEOUS CROPS, ETC.

Cotton (*Gossypium spp.*). In no instance has any specific fungoid disease caused any noticable loss to this crop. In the absence of insect injury, plants appeared quite vigorous and promised excellent yields, although in most instances the usual mildew and leaf-spot existed.

Imphee (*Andropogon sorghum saccharatus*). In a dry district where this catch crop was being grown subsequent to the reaping of the crop of sugar cane it was reported that many plants were severely stunted in certain parts of the field and appeared to be suffering from root disease. Several diseased plants were brought to the laboratory and the root system examined carefully. No indications of insect attack were found. In several instances, plate cultures were made of the diseased and dying roots and two fungi were found associated with them and isolated in pure culture, viz: *Rhizoctonia* sp. and *Fusarium* sp. Inoculation experiments have not yet been conducted with these fungi, but they are described below for reference.

DESCRIPTION OF FUSARIUM SP. ISOLATED FROM ROOTS OF IMPHEE SUFFERING FROM ROOT DISEASE.

On sweet potato agar the mycelium is white and byssoid at first, becoming yellow with age. In culture it is densly interwoven, often forming yellowish strands; septate. Macroconidia 8—11 by 3 microns, mostly uniseptate and occaionally biseptate, very slightly curved. Microconida, round, 3 microns diam. to elliptic 8 by 2·5 microns. Both macro and microconidia are hyaline. Typical chlamydosporoes produced and may be intramycelial, laterally sessile or terminal. The intra-mycelial chlamdospores often occur in pairs and not infrequently in chains

of three or four. The internal contents of the chlamydospores are yellowish at first but turn brown later. The thick wall is pink in colour and smooth. When mature they are spherical but before maturity may be somewhat elliptic; 13.5 microns in diameter.

DESCRIPTION OF RHIZOCTONIA SP. ISOLATED FROM ROOTS OF IMPHEE SUFFERING FROM ROOT DISEASE.

This is probably identical with *Rhizoctonia ferrugena* Matz. Pure cultures (in tubes) developed numerous reddish brown roundish sclerotia of about 4 mms diam. embedded in the sweet potato agar medium, on the walls of the tube, and also suspended by mycelial strands in the byssoid aerial growth. The mycelium is hyaline or slightly yellowish and typical of the genus. Grouping of sclerotia sometimes occured but this was merely due to the proximity of individual sclerotia.

The writer is of the opinion that the diseased condition was mainly due to the parasitism of *Rhizoctonia ferrugena*, Matz. the virulence of which was caused by the extreme dry soil conditions existing coupled with the high temperature of the soil in the untrashed field. In such dry districts every effort should be made to conserve soil moisture by surface mulching and trashing, the latter also aiding considerably in keeping down the temperature of the soil.

Devils grass. (*Cynodon Dactylon*, Pers.). An instance was reported of a paddock which, in spite of numerous showers of rain, lost most of its grass. The writer made an examination of the roots from several parts of the paddock and could find no evidence of insect attack. The roots in every instance were reddish and diseased looking, however, and plate cultures were made of diseased and dying portions. Two fungi were found associated with these diseased and dying roots and isolated in pure culture viz: *Fusarium* sp and *Isaria* sp. *Isaria graminiperda* B. & M. is said to cause considerable injury to grasses in Australia, but descriptions of this species were not available. The species of *Fusarium* could not be identified by means of the available literature.

Lignum-vitae (*Guiacum officinale*). A tree situated toward the southern part of the island about a quarter of a mile from the sea coast was reported to be dying late in January. There were several of these trees in a row but apart from this one the others appeared fairly healthy. This tree was not less than 15 feet tall and well branched, Quite a large branch however was withered and all the leaves had dropped. Careful examination failed to reveal any indications of insect attack, but there was much evidence that some fungus was the pathological factor. All along the stems and twigs the minute pycnidia of the fungus could be seen embedded in the tissues of the epidermis. Even the green twigs and stems bore numerous fructifications. Portions of dying tissue were sterilized superficially and planted in sterile medium. Two fungi were recovered in pure culture from these diseased tissues in several instances and identified as *Phoma* sp. and *Phomopsis stewarti*, Pk., respectively. The pure cultures of this latter fungus agreed with the description given by Stevens and produced on sweet potato agar both *Phlyctaena* and *Phoma*-like spores. Stevens states that this fungus with its filiform spores only was noted as a parasite on *Cosmos* by Halsted who referred to it as a species of *Phlyctaena*. He further states that it has been noted in New York by Stewart and is destructive both in the greenhouse and in the open.

The species of *Phoma* produces black pycnidia 100—150 microns in diameter on sweet potato agar. They may be either single or gregarious. Spores very hyaline, commonly binucleate, elliptic to oblong, 3 – 5. 4 × 1. 5 – 2 microns.

It was recommended that all diseased twigs and branches be pruned off and the exposed surfaces painted over or tarred. All prunings, together with dried twigs, etc. beneath the tree should be collected and burned as soon as possible.

B. A. BOURNE.
Assistant Director of Agriculture.

INFORMATION ON VARIOUS AGRICULTURAL MATTERS SUPPLIED TO THE PRESS.

Through the courtesy of the editors of some of the local newspapers, who so far have been always willing to render any assistance they can in these matters, the following subjects were brought to the notice of agriculturists :—

On October 10, 1921, informing cotton growers that a letter had been received from Messrs Wolstenholme and Holland, Cotton Brokers of Liverpool, to the effect that four of the five bales of Barbados cotton sent to them for sale had been sold at sixty-eight cents per lb.

SUGAR AND MOLASSES CROPS.

According to the Customs Returns, the exported sugar and molasses crops of 1921 were 23,945 tons of vacuum pan crystals, 2,400 tons of muscovado sugar and 4,191,471 wine gallons of molasses, equal at 110 gallons per puncheon, to 38,104 puncheons of molasses of all grades of the total value of £919,114 made up as follows :—

White Crystal sugar	7	tons	valued at	£	207
Yellow „ „	42	„	„ „		1,050
Dark „ „	23,896	„	„ „		477,921
Muscovado „ „	2,400	„	„ „		36,009
	26,345			£	515,187
Fancy Molasses	3,670 713 gals.		at	£	367 071
Choice „	519,312	„	„		36,784
Vacuum Pan „	1,446	„	„		72
	4,191,471			£	919,114

Fancy molasses is concentrated cane juice from which most of the impurities have been removed, but owing to the impossibility in the ordinary muscovado sugar factories of concentrating each tayche or panful of fancy molasses to the same density it is difficult to say how many gallons of this molasses are equivalent to a ton of muscovado sugar. However, from data obtained from various sources it would appear that 380 wine gallons of fancy molasses at 41° Beaumé are equivalent to one ton (2,240 lb) of centrifugal muscovado sugar and 115 wine gallons of choice molasses. At this rate the fancy molasses manufactured in 1921 is equivalent to 9,660 tons of sugar, The total sugar crop, therefore, if no fancy molasses had been made, would have been 36,005 tons, i.e., 12,207 tons less than the previous year. The above does not include the sugar consumed in the island, which is estimated to be about 8,000 tons.

COTTON CROPS.

For the "Cotton Year," i.e. from October 1, 1920 to September 30, 1921, there were exported from 1,564 acres 183 bales of lint, weighing 88,416 lb. of the value of £14,242. There were also exported 47 bales of linters weighing 22,318 lb. of the estimated value of £5,140. In addition, there were 217,522 lb. of seed of the estimated value of £486 all of which was, with the exception of that used for planting purposes, manufactured locally into oil and undecorticated cotton seed meal. It may be mentioned that for the previous year there were 1,179 acres of cotton which yielded 206 bales of lint weighing 100,610 lb. of the estimated value of £13,201.

METEOROLOGY.

The following are summaries of the observations recorded at the Government Meteorological Station for the year 1921, the details of which are given in Appendix 1.

Barometric Pressure. During 1921 the mean pressure, corrected for temperature and gravity and reduced to sea-level, was at 9 a.m. 29·973 and at 3 p.m. 29·899 inches; the highest recorded being 30·099 inches on November 11, and the lowest 29·694 inches on September 8. In 1911 for the first time the barometric pressure was corrected for gravity. For the ten years 1911—1920 the average barometric pressure was at 9 a.m. 29·942 inches and at 3 p.m. 29·876 inches. The

highest pressure at 9 a.m. during the ten years was on August 19, 1919 when it was 30·112 inches, and the lowest at 3 p. m. on April 14, 1915 when it was 29·669.

Temperature. The mean maximum temperature for the year 1921 was 84·7° F. and the mean minimum 72·8° F. The maximum extreme for the year, which was 88·7° F. was registered on August 29 and the minimum extreme which was 64·4° F. was registered on January 3. The mean average temperature was 78·8 F., the highest monthly range for the year was 20·5° F., the lowest was 15·0 F., and the mean monthly range 17·2 F. For the ten years 1911—1920, the average maximum temperature was 84·6° F. and the average mimimum 74·0 F. The average maximum extreme during the ten years was 86·9 F., and the average minimum extreme 68·2 F; the average mean temperature was 79·3 F. and the average range 18 8° F. During the ten years the maximum extreme was 91·1° F. on August 24, 1919, and the minimum extreme 61·0° F. on February 20, 1911.

Tension of Vapour and Relative Humidity. The mean tension of vapour for the year 1921 was at 9 a.m ·688 and at 3 p.m. ·670. For the ten years 1911-1920, the average tension of vapour was at 9 a.m. ·729 and at 3 p m. ·695. The mean relative humidity for the year 1921 was at 9 a.m. 65 and at 3 p.m. 62. For the ten years 1911-1920 the average relative humidity was at 9 a.m. 67 and at 3 p.m. 63.

Wind. The mean daily velocity of the wind during 1921 was 13·5 miles per hour, the maximum being 25·8 miles per hour on September 9 and the minimum 8·1 miles per hour on November 16. The average velocity for the ten years ended 1920 was 11·9 miles per hour.

Rainfall. The rainfall measured at the Government Meteorological Station during 1921 amounted to 32·72 inches. This fell on 156 days, the greatest fall being 1·71 inches on September 3, and the lowest ·01 of an inch on March 15 and 16, September 6 and 24, October 11 and 24 and November 7 and 19. For the ten years 1911—1920 the average rainfall was 45·74 inches and the average number of days on which rain fell was 180.

Rainfall of the Island. The total mean rainfall for the year 1921 from 107 stations was 40·72 inches which fell on 154 days and was 21·09 inches below the average for the sixty years ended December 31, 1920, which was 61·81 inches. The details with respect to the number of days on which rain fell at each of the stations during each month of the year, the total rainfall for each month, and in a number of instances, the height of the rain guage above sea-level are given in Appendix H.

JOHN R. BOVELL,
Director of Agriculture.

METEOROLOGICAL REPORT FOR 1921.

DEPARTMENT OF AGRICULTURE, BARBADOS.

HEIGHT ABOVE SEA LEVEL 181 FEET.

Months.	Barometric Pressure reduced to sea-level, 32° Fahrenheit, and corrected for gravity.					Temperatures.									Tenison of Vapour.			Relative Humidity.			Wind.	Rainfall.	No. of days on which rain fell.
	9 a.m.	3 p.m.	Mean.	Highest.	Lowest.	Maximum Mean.	Minimum Mean.	Maximum Extreme.	Minimum Extreme.	Maximum blackened bulb 4 feet from ground in vacuo.	Mean for month.	Range for month.	Dew Point 9 a.m.	Dew Point 3 p.m.	9 a.m.	3 p.m.	Mean.	9 a.m.	3 p.m.	Mean.	Velocity, miles per hour.		
January ...	30·011	29·927	29·969	30·058	29·824	83·2	70·6	84·9	64·4	151·2	76·9	20·5	65·3	64·4	·620	·608	·614	62·5	58·7	60·6	14·4	·74	8
February ...	30·008	29·926	29·967	30·077	29·844	83·4	70·2	84·8	67·9	151·6	76·8	16·9	64·7	63 9	·594	·598	·596	60·4	56·9	58·7	14·2	1·08	11
March ...	29·983	29·903	29·943	30·035	29·815	83·1	70·7	85·8	68·7	151·6	76·9	17·1	66·0	64·8	·642	·618	·630	66·1	59·9	63·0	16·7	1·89	17
April ...	29·989	29·911	29 950	30·033	29·869	84·3	72·2	86·7	68·5	153·5	78·3	17·8	64·3	72·2	·605	·599	·602	58·4	55·7	57·1	17·2	·46	3
May ...	29·963	29·894	29·929	30·015	29·846	85·8	72·8	88·0	67·7	152·4	79·3	20·3	65·6	65·2	·631	·624	·629	58·8	55·2	57·0	14·6	·38	6
June ...	29·971	29·915	29·943	30·026	29·851	86·6	75·3	88·5	73·5	147·6	81·0	15·0	68·7	68·2	·702	·689	·696	62·8	60·6	61·7	18·4	1·57	10
July ...	30·012	29·953	29·983	30·097	29·856	86·4	74·4	88·0	71 6	150·6	80·4	16·4	69·6	67·9	·727	·674	·701	66·7	58·9	62·8	14·6	3·41	14
August ...	29 963	29·900	29·932	30·048	29·808	86·4	74·6	88·7	71·4	148·5	80·5	17·3	69·6	68·3	·725	·701	·713	64·9	60·1	62·5	12·9	3 49	16
September ...	29·945	29·872	29 909	30·006	29·694	85·9	74·7	88·2	71·5	152·6	80·3	16·7	71·3	69·5	·768	·726	·747	67·8	63·0	65·4	10·1	5·49	16
October ...	29·932	29·851	29·892	29·969	29·796	84·5	73·7	83·3	70·4	154·4	79·1	15·9	71·7	71·3	·782	·767	·775	73·6	71·9	72·8	9·9	6·86	22
November ...	29·958	29·868	29·913	30·099	29·768	83·8	72·9	85·7	68·6	152·6	78·4	17·1	69·7	69·3	·732	·729	·731	69·5	68·0	68·3	10·3	4·61	18
December ...	29·959	29·866	29·908	29·999	29·790	82·9	71·6	84·6	68·7	152·4	77·3	15·9	69·5	69·0	·723	·713	·718	71·4	68·5	70·0	9·9	2·74	15
	359·685	358·786	359·238	360·462	357·764	1016·3	873·7	1010·2	833·3	1819·0	945·2	206·9	816·0	814·9	8·254	8·046	8·152	782·9	737·4	760·4	162·3	32·72	156
	29·973	29·899	29·936	30·039	29·814	84·7	72·8	86·7	69·4	151·6	78·8	17·2	68·0	67·9	·688	·670	·679	65·2	61·5	63·4	13·5	2·73	13

BARBADOS RAINFALL

FROM

JANUARY TO DECEMBER,

1921.

BARBADOS RAINFALL FROM

Name of Station.	Elevation.	January.		February.		March.		April.		May.		June.	
	Feet.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
I. DISTRICT "A" ST. MICHAEL *Lowlands.*													
Strathmore ...	...	5	1·22	8	1·24	12	2·11	3	·50	7	1·45	8	2·07
Haggatt Hall ...	52	7	·82	12	1·27	19	2·54	6	·73	7	·68	17	2·35
Clapham... ...	216	3	·45	9	1·36	7	2·33	4	·69	7	1·54	5	2·55
Government House ...	90	8	·75	7	·97	13	2·25	6	·55	8	·95	14	3·90
District "A" Police Station... ...	97	13	·83	12	1·07	19	2·03	4	·48	7	·51	13	2·08
Central Police Station ...	9	·69	11	·83	17	1·78	5	·50	8	1·08	12	2·40	
Bush Hall ...	110	2	·30	4	·61	10	1·64	3	·55	3	·33	12	2·01
Grazettes ...	...	11	·95	7	·90	13	1·91	2	·26	6	·35	10	1·47
Waterford ...	...	9	·83	9	·77	17	2·00	3	·44	5	·41	11	1·47
Windsor Cot ...	...	10	·85	12	1·06	17	1·81	6	·45	10	·68	13	2·18
Warrens	...	10	1·59	11	1·78	15	·56	8	1·07	9	1·49	17	3·12
Neils	...	11	1·48	12	1·06	17	1·95	3	·65	6	·64	9	1·77
Cane Wood ...	...	8	·80	9	1·09	10	1·92	3	·53	4	·40	11	1·89
Codrington House ...	...	8	·74	11	1·08	17	1·89	3	·46	6	·38	10	1·57
Goodland ...	...	7	·62	13	1·07	16	2·31	4	·60	3	·43	13	2·22
Penlee	...	4	·33	7	·64	9	1·58	5	·37	7	1·21	14	2·84
		125	13·25	154	16·80	228	30·61	68	8·83	103	12·53	189	36·49
		7·81	·83	9·63	1·05	14·25	1·91	4·25	·55	6·44	·78	11·81	2·28
II. DISTRICT "B" CHRIST CHURCH. *Lowlands.*													
Woodbourne ..	150	7	·89	10	1·20	14	2·32	5	·58	9	·92	18	2·54
Seawell	...	6	·47	9	·60	13	2·08	7	·56	8	2·51	12	3·39
Hannays ...	...	9	1·20	11	1·42	16	2·66	6	·81	9	1·80	13	2·43
Coverley... ...	254	7	·69	10	1·69	12	2·10	5	·84	5	2·18	13	3·20
Searles	283	14	1·03	14	1·85	21	2·83	10	·79	7	2·53	18	2·83
Lower Greys ...	...	9	1·09	11	1·81	15	3·25	5	·66	9	2·12	12	2·96
Newton	...	9	·92	12	1·86	13	2·85	6	·91	8	2·14	10	3·31
Bentley	169	9	·78	13	1·46	19	3·27	8	·84	12	2·52	18	3·13
Isleworth (Hastings) ...	8	·72	10	·66	13	1·70	6	·55	6	·59	16	2·14	
Frere Pilgrim ...	...	8	1·03	7	1·60	20	3·61	6	·82	10	1·77	18	2·82
Graeme Hall ...	...	3	·30	5	·65	9	1·29	4	·32	5	·84	4	1·65
Ventnor		18	2·63	7	·89	10	2·20	9	·57	6	89	15	2·31
		107	11·75	119	15·89	175	30·16	77	8·25	94	20·81	167	32·71
		8·92	·98	9·92	1·31	14·58	2·51	6·42	·69	7·83	1·73	13·92	2·73

DIX II.

JANUARY TO DECEMBER 1921.

July.		August.		September.		October.		November.		December.		Totals.	
Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
13	4·32	10	3·37	13	4·78	16	5·66	8	2·24	9	3·63	112	33·19
16	3·84	16	3·51	16	6·01	18	6·68	11	4·28	16	3·11	161	35·82
8	3·89	12	3·86	9	3·76	9	3·39	5	3·45	4	2·52	82	30·19
14	4·10	11	3·35	12	5·75	29	8·92	17	3·97	13	2·97	152	38·43
16	3·84	15	3·15	16	5·60	31	5·93	14	3·36	12	2·54	172	31·42
17	3·95	17	3·04	12	5·00	20	5·49	10	3·11	12	2·84	150	30·21
12	3·58	15	2·92	16	5·50	31	6·58	17	4·35	11	2·40	136	30·77
10	2·94	18	3·00	12	4·69	19	5·32	13	4·35	13	3·15	134	29·29
14	3·62	13	2·75	13	4·94	20	6·08	14	4·09	12	2·46	140	29·86
18	3·72	18	3·26	16	5·65	22	5·93	16	3·60	15	2·56	173	31·75
11	5·71	13	6·04	14	6·71	17	7·90	12	5·70	13	5·34	150	46·01
12	4·51	11	3·67	12	5·81	17	6·25	13	3·30	12	3·01	135	34·10
14	3·78	15	4·46	10	5·54	16	5·82	14	3·82	10	3·02	124	33·07
14	3·41	16	3·49	16	5·49	22	6·86	18	4·61	15	2·74	156	32·72
7	3·79	12	2·74	12	5·82	20	4·99	13	3·45	8	2·58	128	30·62
19	4·48	15	3·18	15	3·90	20	4·99	10	3·18	11	2·49	136	29·19
215	63·28	227	55·79	214	84·95	327	97·39	205	60·86	186	46·86	2,241	527·64
13·44	3·96	14·19	3·49	13·37	5·31	20·44	6·09	12·81	3·80	11·62	2·93	140·06	32 98
16	4·23	13	3·68	12	3·98	20	6·84	14	4·47	11	2·90	149	34·55
13	3·50	16	4·24	16	3·62	19	5·83	15	3·47	14	2·96	148	33·23
12	4·69	13	3·43	13	4·85	17	7·00	13	4·80	12	3·06	144	38·15
10	5·06	13	5·14	12	3·76	14	6·34	10	5·58	10	3·40	121	39·98
20	5·12	23	5·08	16	4·85	20	7·19	17	5·10	20	4·20	200	43·40
12	5·75	14	4·25	13	5·82	16	7·82	13	5·49	12	3·43	141	44·45
10	4·88	12	4·78	11	4·26	16	7·00	12	4·38	11	4·21	130	41·50
16	5·28	18	3·65	17	4·86	19	6·76	16	4·44	16	3·23	181	40·22
15	3·36	13	2·72	13	3·32	18	5·43	14	3·26	12	2·20	144	26·65
14	5·31	17	4·77	17	5·23	18	7·16	11	4·77	12	3·39	158	42·28
11	2·62	14	3·59	12	4·08	17	6·30	10	4·35	11	2·80	105	28·79
13	2·97	12	2·72	12	3·71	16	5·99	9	3·38	12	2·61	139	30·87
162	52·77	178	48·05	164	52·34	210	79·66	154	53·49	153	38·39	1,760	444·07
13·50	4·40	14·83	4·00	13·67	4·36	17·50	6·64	12·83	4·46	12·75	3·20	146·67	37·01

Name of Station.	Elevation.	January.		February.		March.		April.		May.		June.	
	Feet.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
ST. GEORGE. *Highlands.*													
Ashbury		11	1·25	13	2·26	15	4·16	7	1·22	9	1·91	15	3·43
Cottage ...	720	13	1·64	13	2·23	20	4·00	9	1·42	15	3·21	17	4·71
Woodland ...	...	10	·94	15	1·68	18	4·11	9	1·62	13	2·42	13	3·85
Ellesmere ...	...	11	1·00	11	1·48	16	3·39	8	1·38	13	2·28	17	3·26
Golden Ridge ...	...	12	1·37	8	2·17	8	3·90	9	2·62	16	3·21	15	3·22
		57	6·20	60	9·82	77	19·56	42	8·26	66	12·98	77	18·47
		11·40	1·24	12·00	1·97	15·40	3·91	8·40	1·65	13·20	2·60	15·40	3·69
ST. GEORGE. *Lowlands.*													
Salters	...	10	1·04	10	1·04	21	2·57	5	·60	3	·60	11	1·81
Byde Mill ...	...	11	·68	14	1·67	21	3·25	13	1·35	12	2·00	13	3·80
Brighton... ...	...	5	·90	5	·95	12	2·99	4	1·01	6	2·46	13	3·27
District "B" Police Station ...	...	15	1·16	17	1·54	20	3·27	11	·85	18	1·81	19	2·93
		41	3·78	46	5·20	74	12·08	33	3·81	39	6·87	56	11·81
		10·25	·95	11·50	1·30	18·50	3·02	8·25	·95	9·75	1·72	14·00	2·95
III. DISTRICT "C."													
ST. PHILIP. *Highlands*													
District "C" Police Station ...	505	8	·44	9	1·17	16	2·74	5	·93	9	1·37	11	1·95
		8·00	·44	9·00	1·17	16 00	2·74	5·00	·93	9·00	1·37	11·00	1·95
ST. PHILIP. *Lowlands.*													
Fortescue ...	150	3	·26	8	·68	9	1·61	7	1·27	7	·90	11	1·74
Thicket	243	2	·26	9	1·91	7	1·87	4	1·07	6	1·29	8	1·98
Bushy Park ...	161	4	·31	7	1·24	13	2·26	3	·58	6	1·18	15	3·08
Oughterson ...	291	7	·55	8	1·28	8	2·25	Nil		6	1·09	8	2·22
Government Industrial School ...	210	11	·71	13	1·29	19	2·86	11	1·11	12	1·30	14	3·49
Sunbury ...	160	7	·35	11	1·42	13	2·27	7	1·03	10	1·41	15	3·47
Hampton ...	103	6	·32	9	1·30	12	1·99	5	·79	10	1·41	14	2·92
Carrington ...	110	8	·94	12	1·65	17	3·38	7	1·09	9	1·85	15	3·27
Chapel	228	14	·87	14	1·05	18	2·56	9	·87	13	1·61	15	3·46
Edgecumbe ...	207	6	·49	9	1·39	12	2·52	4	·98	15	2·27	19	2·90
Ruby	...	5	·43	8	1·32	9	1·65	3	·65	6	1·47	10	2·52
Summervale ...	...	12	·89	14	1·50	15	2·71	8	·92	10	1·44	13	2·66
		85	6·88	122	16·03	152	27·93	68	10·36	110	17·22	157	33·71
		7·08	·57	10·17	1·34	12·67	2·33	5·67	·86	9·17	1·44	13·08	2·81

FROM JANUARY TO DECEMBER 1921

July.		August.		September.		October.		November.		December.		Totals.	
Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches	Days.	Inches.	Days.	Inches.	Days.	Inches.
15	5·52	14	4·67	16	4·04	20	6·30	17	3·42	20	4·57	172	42·75
23	7·73	18	6·16	14	6·01	18	8·01	20	6·15	17	5·04	197	56·31
18	6·00	16	5·46	15	4·50	19	6·48	20	4·66	16	4·08	182	45·80
21	5·76	20	4·60	18	4·73	23	7·04	20	4·40	17	3·73	195	43·00
21	6·45	13	5·08	15	4·46	22	4·99	20	7·47	20	4·66	179	59·66
98	31·46	81	25·99	78	23·74	102	32·82	97	26·10	90	22·08	925	247·52
19·60	6·29	16·20	5·19	15·60	4·75	20·40	6·56	19·40	5·22	18·00	4·42	185·00	49·50
13	4·25	13	3·72	13	6·23	17	6·80	11	3·47	10	3·29	137	35·42
19	6·08	18	4·34	16	6·28	18	6·52	16	4·36	18	3·96	189	44·20
11	5·91	11	3·77	11	5·53	15	7·46	12	3·66	11	3·75	116	41·66
20	5·10	20	4·42	19	5·40	22	7·34	17	5·05	20	3·40	218	42·27
63	21·34	62	16·25	59	23·44	72	28·12	56	16·54	59	14·40	660	163·64
15·75	5·34	15·50	4·06	14·75	5·86	18·00	7·03	14·00	4·13	14·75	3·60	165·00	40·91
16	4·62	18	3·83	15	3·78	21	6·23	19	3·27	17	3·32	164	33·65
16·00	4·62	18·00	3·83	15·00	3·78	21·00	6·23	19·00	3·27	17·00	3·32	164·00	33·65
13	4·57	12	2·62	12	2·75	18	6·63	16	2·93	15	2·37	131	28·33
12	5·63	11	2·65	14	3·86	17	6·94	16	3·29	13	2·24	119	32·99
16	4·71	12	3·80	10	3·89	17	6·29	9	2·25	13	3·18	125	32·27
15	5·39	15	4·31	13	4·96	16	6·33	12	3·20	13	5·18	121	34·76
16	5·03	18	4·01	16	5·49	20	6·25	20	2·62	18	3·33	188	37·49
15	4·97	17	2·97	14	5·47	15	5·79	13	2·90	14	3·59	151	35·64
15	4·75	14	3·59	12	4·16	18	6·79	9	3·48	11	3·26	135	35·26
16	5·78	16	3·55	15	4·89	19	6·16	14	3·85	15	3·31	163	39·73
15	5·18	20	4·96	17	6·78	20	6·47	16	3·01	12	3·35	183	40·17
14	5·06	22	3·79	17	5·02	18	6·70	14	3·90	15	3·48	165	38·50
13	5·13	11	2·82	12	3·87	15	6·78	10	2·54	8	2·82	110	32·00
15	4·91	16	4·22	15	4·17	19	6·16	15	3·16	16	3·22	168	35·96
175	61·11	184	42·79	167	55·31	212	77·29	164	37·13	163	37·33	1,759	423·09
14·58	5·09	15·33	3·57	13·92	4·61	17·67	6·44	13·66	3·09	13·58	3·11	146·58	35·26

Name of Station.	Elevation.	January.		February.		March.		April.		May.		June.	
	Feet.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
ST JOHN. *Highlands.*													
Colleton ...	767	11	1·21	11	1·20	14	3·27	8	1·35	9	1·46	15	2·91
Cliff	534	6	·43	11	1·75	13	3·53	5	1·71	5	·94	8	2·63
Ashford ...	606	9	1·25	13	1 88	13	3·86	8	1·95	9	1·75	11	3·14
Henley	553	12	1·04	14	1·75	16	3·91	9	1·76	16	2·04	16	3·48
Malvern ...	900	13	1·46	11	2·24	13	4·07	5	1·07	11	1·79	13	3·07
Kendal	544	10	1·03	15	1·73	14	4·23	10	1·85	11	1·84	12	3·10
Claybury ...	750	6	1·81	7	2·48	8	4·89	3	1·51	7	1·13	8	3·34
Clifton Hall ...	...	8	1·35	9	1·85	12	2·88	6	1·25	3	·75	10	2·94
Lemon Arbor ...	720	7	2·01	13	2·15	15	4·75	5	·82	9	2·12	10	3·13
Haynes Hill ...	...	10	1·49	8	1·27	13	3·79	6	1·54	12	1·53	12	3·10
		92	13 08	112	18·30	131	39·18	65	14·81	92	15·35	115	30·84
		9·20	1·31	11·20	1·83	13·10	3·92	6·50	1·48	9·20	1·54	11·50	3·08
ST. JOHN. *Lowlands.*													
Codrington College ...	...	4	·88	9	1·10	11	2·37	6	·93	5	1·10	13	2·49
College	...	5	·78	9	1·02	11	2·19	5	·98	2	·90	7	1·57
New Castle ...	238	9	1·17	10	1·45	13	2·16	9	1·08	10	·87	16	2·29
	...	18	2·78	28	3·57	35	6 72	20	2·99	17	2·87	36	6·35
	...	6·00	·94	9·33	1·19	11·67	2·24	6·67	1·00	5·67	·96	12·00	2·12
IV. DISTRICT "D."													
ST. THOMAS. *Highlands.*													
Mt. Wilton ...	987	15	1·72	12	2·76	14	4·32	9	1·69	11	2·58	19	4·55
Lion Castle ...	900	18	2·03	20	3·29	21	4·62	16	1·93	20	2·48	20	4·96
District "D" Police Station ...	678	14	2·14	20	2·51	19	3·19	14	1·30	12	1·91	21	3·85
Farmers ...	903	9	1·24	11	2·09	10	2·63	6	·93	9	3·60	12	3·22
Canefield ...	1,024	14	2·31	12	2·85	5	3·86	4	1·35	2	3·86	5	4·85
Bloomsbury ...	...	15	1·86	15	2·93	19	4·51	12	2·17	14	3·41	21	4·10
Vaucluse ...	...	10	2·26	11	2·03	13	3·45	6	1·25	7	1·42	14	4·20
Highland ...	...	15	1·85	19	2·99	22	4·75	13	2·07	14	3·20	23	5·28
	...	110	15·41	120	21·45	123	31·33	80	12·69	89	22·46	135	35·01
	...	13·75	1·93	15·00	2·68	15·38	3·92	10·00	1·59	11·12	2·81	16·87	4·38

JANUARY TO DECEMBER 1921.

July.		August.		September.		October.		November.		December.		Totals.	
Days.	Inches.	Days.	Inches	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
15	5·74	12	3·42	12	2·48	15	7·76	13	3·23	18	3·27	153	37·30
17	5·94	12	5·20	14	4·13	14	6·54	16	3·89	14	3·65	135	40·34
15	6·70	13	5·56	16	3·77	16	7·83	18	4·18	18	4·24	159	46·11
19	6·30	19	5·22	16	4·42	21	6·67	19	4·14	18	4·34	195	45·07
17	6·09	18	4·41	13	5·21	23	7·72	18	6·38	13	4·00	168	47·51
16	6·15	16	5·20	13	4·20	18	7·01	15	3·87	15	4·03	165	44·24
14	6·94	15	5·71	13	4·99	20	8·27	15	4·99	14	5·41	130	51·47
7	4·77	8	2·52	7	4·54	13	6·66	4	4·39	7	3·71	94	37·61
14	5·25	15	5·66	13	4·01	19	8·19	16	4·32	21	4·58	157	46·99
16	6·10	12	3·25	12	2·95	14	7·77	17	4·33	21	3·53	153	40·65
150	59·98	140	46·15	129	40·70	173	74·42	151	43·72	159	40·76	1,509	437·29
15·00	6·00	14·00	4·61	12·90	4·07	17·30	7·44	15·10	4·37	15·90	4·08	150·90	43·73
12	4·95	11	2·66	10	2·90	18	6·64	15	3·57	14	2·71	128	32·25
12	4·90	14	2·80	9	3·16	14	5·94	13	3·57	13	2·96	114	30·77
13	5·10	18	3·04	14	3·23	17	6·88	17	4·33	14	2·95	160	34·55
37	14·95	43	8·50	33	9·29	49	19·46	45	11·47	41	8·62	402	97·57
12·33	4·98	14·33	2·53	11·00	3·09	16·33	6·48	15·00	3·82	13·67	2·87	134·00	32·52
19	7·44	18	5·75	17	4·68	21	8·33	16	5·69	16	5·43	187	55·14
22	6·69	22	6·27	17	5·69	26	7·67	17	7·19	18	3·39	237	56·21
21	7·01	19	5·99	20	5·30	25	7·69	20	7·93	23	5·62	228	54·14
15	5·76	16	5·82	15	5·44	20	8·05	17	8·82	14	4·60	151	52·20
15	8·09	16	5·96	5	6·36	11	8·18	14	7·30	17	5·12	120	60·09
20	8·21	19	6·74	18	5·85	24	9·35	20	7·00	19	5·66	216	61·79
15	6·07	14	5·91	13	5·21	16	6·88	17	5·64	13	3·80	149	48·12
22	8·68	21	6·51	19	6·08	22	8·60	13	7·10	17	4·48	220	61·59
149	57·95	145	48·95	124	44·61	165	64·95	134	56·67	137	38·10	1,511	449·38
18·62	7·24	18·13	6·12	15·50	5·57	20·63	8·12	16·75	7·08	17·13	4·76	188·88	56·20

Name of Station.	Elevation.	January.		February.		March.		April.		May.		June.	
	Feet.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
ST. THOMAS. *Lowlands.*													
Hopewell	534	16	1·77	19	2·44	22	4·25	15	1·30	16	1·88	19	4·12
Welches	398	16	1·35	17	1·66	19	3·07	11	1·07	11	1·13	17	3·47
Bennetts	350	12	2·21	12	1·75	16	2·93	5	1·23	8	1·14	13	3·81
Bagatelle	...	10	1·40	7	1·03	14	2·24	4	·53	7	1·71	14	3·26
Strong Hope ...	590	5	1·60	12	3·18	11	3·95	5	1·18	6	2·18	13	3·87
Clifton	...	10	1·68	13	2·40	15	4·80	4	1·45	6	2·25	14	4·31
Cane Garden ...	360	11	1·26	8	1·50	11	1·98	4	·93	8	·83	14	3·01
		80	11·27	88	13·96	108	23·22	48	7·69	62	11·07	104	25·85
		11·43	1·61	12·57	1·99	15·43	3·32	6·86	1·10	8·86	1·58	14·86	3·69
ST. JAMES. *Highlands.*													
Sion Hill	618	7	1·29	7	1·58	13	2·52	9	1·47	10	3·02	8	2·54
Apes Hill ...	...	8	1·43	12	1·83	9	3·10	5	1·15	10	3·45	13	3 26
	...	15	2·72	19	3·41	22	5·62	14	2·62	20	6·47	21	5 80
	...	7·50	1·36	9·50	1·71	11·00	2·81	7·00	1·31	10·00	3·24	10·50	2·90
ST. JAMES. *Lowlands.*													
Blowers	...	14	1·67	15	2·48	13	2·75	3	·45	12	2·11	13	3·41
H'town Police Station	...	10	1·49	15	1·68	15	2·39	6	·56	8	1·13	16	3·39
Trents	...	11	1·61	11	2·05	13	2·69	5	·62	9	1·90	15	3·48
Westmoreland ...	...	11	1·45	10	1·40	13	1·28	4	·55	6	2·01	13	2·73
Lancaster	...	10	2·02	14	3·02	18	3·96	8	1·02	12	2·85	16	4·07
Husbands	...	10	·79	9	·86	9	1·31	3	·50	6	·46	13	1·76
Oxnards	...	10	·77	9	·91	15	1·33	8	·47	5	·67	14	1·71
	...	76	9·80	83	12·40	96	15·71	37	4·14	58	11·13	100	20·55
	...	10·86	1·40	11·86	1·77	13·71	2·24	5·29	·59	8·28	1·59	14·29	2·94
V. DISTRICT "E."													
ST. PETER. *Highlands.*													
Nicholas Abbey ...	824	6	·93	8	1·54	10	2·53	1	·21	7	2·07	8	1·02
Orange Hill ...	...	6	1·09	5	1·46	8	2·04	4	·55	3	1·58	9	2·00
Mangrove ...	...	8	·99	10	1·38	12	2·49	7	·88	9	1·74	13	1·96
Castle	700	10	·61	13	1·50	12	2·08	5	·26	9	2·69	10	1·81
Ebworth	...	8	·88	12	1·76	12	2·56	7	·61	9	3·61	13	2·39
Portland	...	6	·72	9	1·43	14	2·76	6	·47	7	3·50	11	1·62
	...	44	5·22	57	9·07	68	14·46	30	2·98	44	15·19	64	10·80
	...	7·33	·87	9·50	1·51	11·33	2·41	5·00	·50	7·33	2·53	10·67	1·80

JANUARY TO DECEMBER 1921.

July.		August.		September.		October.		November.		December.		Totals.	
Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
22	6·96	22	6·03	18	5 57	22	7·65	23	6·63	25	5·38	239	53·98
22	5·10	19	6·18	17	6 16	18	8 46	21	5·40	16	4·37	204	47·42
14	4·96	18	5·93	13	5·62	17	6·91	17	6·07	17	3·95	162	46·51
14	4·71	14	6·10	14	6·50	13	8 74	13	5·39	11	4·20	135	45·81
15	7·57	12	6 23	14	5·44	17	8·06	16	6·23	15	5·49	141	54·93
20	7·68	15	5·74	13	3·78	21	7·44	16	5·63	20	6·01	167	53·17
18	4·57	14	5·39	13	6·09	18	7·66	18	5·06	16	3·70	153	41·98
125	41·55	114	41·60	102	39·16	126	54·92	124	40·41	120	33·10	1,201	343·80
17·86	5·94	16·28	5·94	14·57	5·59	18·00	7·85	17·71	5·77	17·14	4·73	171·57	49·11
15	5·62	15	3·60	14	5·61	21	8·45	14	6·45	15	3·96	148	46 11
17	6·10	15	6·20	17	6·35	20	8·70	15	7·80	15	4·40	156	53·77
32	11·72	30	9·80	31	11·96	41	17·15	29	14·25	30	8·36	304	99·88
16·00	5·86	15·00	4·90	15·50	5·98	20·50	8·57	14·50	7·12	15·00	4·18	152·00	49 94
17	5·34	18	5·84	18	6·27	19	7·41	17	5·52	17	5·10	176	48·35
17	4·60	18	7·54	16	5·70	20	6·22	17	5·45	17	3·39	175	43·51
12	5·19	14	6·95	15	6·99	22	6·80	14	5·33	12	3·72	153	47·33
16	4·87	14	4·51	14	5·44	17	8·46	14	5·75	10	4·23	142	42·68
17	6·78	19	6·90	18	6·61	22	8·77	20	7·96	19	5·00	193	58·96
13	3·67	12	4·42	10	3·79	17	7·12	10	3·73	13	3·43	125	31·84
14	3·29	13	4·28	14	3·78	19	6·89	17	2·95	15	3·15	153	30·20
106	33·74	108	40·44	105	38·58	136	51·67	109	36·69	103	28·02	1,117	302 87
15·14	4·82	15·43	5·78	15·00	5·51	19·43	7·38	15·57	5·24	14·71	4·00	159·57	43·26
17	5·32	13	3·54	14	3·34	20	6·62	15	3·65	15	3 31	134	34·08
9	5·73	16	5·84	10	4·97	20	7·66	13	3·59	10	2·81	113	39·32
15	4·69	15	3·35	16	4·05	23	7·73	14	4·66	19	2·81	161	36·73
18	5·02	17	3·86	16	3·50	22	7·07	19	3·60	14	2·92	165	34·92
20	6·48	13	4·85	14	4·25	20	6·86	13	3·48	17	2·74	158	40·47
17	5·94	13	4·38	11	3·64	19	6·55	17	3·38	16	3·42	146	37·81
96	33·18	87	25·82	81	23·75	124	42·49	91	22·36	91	18·01	877	223 33
16·00	5·53	14·50	4·30	13·50	3·96	20·67	7·08	15 17	3·73	15·17	3·00	146·17	37·22

Name of Station.	Elevation	January.		February.		March.		April.		May.		June.	
	Feet.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
ST. PETER. *Lowlands.*													
Bakers	380	9	1·06	8	1·46	15	2·32	8	·96	7	2·03	13	2·49
District "E" Police Station ...	...	12	1·97	12	1·66	14	2·08	6	1·01	9	1·85	16	2·33
Heywoods ...	50	9	1·50	8	1·34	8	1·60	5	·54	4	1·59	11	1·89
Alleynedale ...	...	6	·79	10	1·04	13	2·23	7	·38	8	4·33	16	2·11
The Rectory ...	...	8	1·47	7	1·42	8	1·59	6	·66	7	2·34	11	2·45
		44	6·79	45	6·92	58	9·82	32	4·05	35	12·14	67	11·27
		8·80	1·36	9·00	1·38	11·60	1·96	6·40	·81	7·00	2·43	13·40	2·25
ST. LUCY. *Lowlands.*													
Lamberts ..	350	12	·91	9	·93	12	1·84	7	·33	9	1·38	11	2·10
Pickerings ...	71	9	·82	6	·95	13	2·41	5	·31	7	1·07	8	1·84
Cove	...	6	·40	5	·82	9	1·95	2	·10	9	1·57	7	3·59
		27	2·13	20	2·70	34	6·20	14	·74	25	4·02	26	7·53
		9·00	·71	6·67	·90	11·33	2·07	4·67	·25	8·33	1·34	8·67	2·51
VI. DISTRICT "F."													
ST. JOSEPH. *Highlands.*													
Blackmans ...	910	10	1·50	14	2·02	16	3·62	11	1·64	11	1·90	12	3·12
Lammings ..	1,040	11	1·67	10	2·26	13	4·07	5	1·72	12	3·02	13	3·26
District "F." Police Station ..	966	9	1·04	17	1·31	13	2·10	7	·88	16	2·20	13	1·55
		30	4·21	41	5·59	42	9·79	23	4·24	39	7·12	38	7·93
		10·00	1·40	13·67	1·86	14·00	3·26	7·67	1·41	13·00	2·37	12·67	2·64
ST. JOSEPH. *Lowlands.*													
											No	returns	were
ST. ANDREW. *Highlands.*													
Cleland	...	8	·89	8	1·42	7	1·53	7	·71	5	2·17	10	2·16
		8·00	·89	8·00	1·42	7·00	1·53	7·00	·71	5·00	2·17	10·00	2·16
ST. ANDREW. *Lowlands.*													
Greenland ..	...	4	·51	3	·43	4	1·41	1	·40	7	1·71	14	2·36
Baxter's House ...	...	4	1·03	10	1·76	7	2·41	6	·70	6	3·30	11	2·08
		8	1·54	13	2·19	11	3·82	7	1·10	13	5·01	25	4·44
		4·00	·77	6·50	1·10	5·50	1·91	3·50	·55	6·50	2·51	12·50	2·22

JANUARY TO DECEMBER 1921.

July		August.		September.		October.		November.		December.		Totals.	
Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
17	5·05	16	4·09	17	4·76	21	8·23	15	3·84	17	3·20	163	39 49
19	5·45	17	4·80	10	5·09	21	7·13	17	3·50	16	2·62	179	39·49
14	4·77	14	4·42	12	4·27	18	6·03	9	3·37	13	2·27	125	33·59
18	5·18	14	4·11	15	4·13	22	7·55	18	4·13	15	3·05	162	39·53
17	5·20	15	5·09	16	4·90	16	7·20	11	3·36	12	2 66	134	38·34
85	25·65	76	22·51	80	23·15	98	36·14	70	18·20	73	13·80	763	190·44
17·00	5·13	15·20	4·50	16·00	4·63	19·60	7·23	14·00	3·64	14·60	2·76	152·60	38·08
15	4·78	16	3 44	18	3·60	24	6·01	17	3·48	13	3·08	163	31·88
14	4·86	15	3·11	13	2·98	19	5·68	16	3·56	15	3·18	140	30·77
7	5·27	11	2·50	10	3·52	17	6·47	10	3·06	9	3·62	102	32·87
36	14·91	42	9·05	41	10·10	60	18·16	43	10·10	37	9·88	405	95·52
12 00	4·97	14 00	3·02	13·67	3·37	20·00	6·05	14·33	3·36	12·33	8·29	135·00	31·84
17	5·95	18	5·34	15	5·06	22	8·48	18	5·14	19	4·87	183	48·64
18	6·46	19	5·86	14	5·51	24	8·23	16	5·75	16	5·26	171	53·07
20	4·41	22	3·42	18	3·91	23	6·97	18	4·85	16	3·15	192	35·79
55	16·82	59	14·62	47	14·48	69	23·68	52	15·74	51	13·28	546	137·50
18·33	5·61	19·67	4·87	15·66	4·83	23·00	7·89	17·33	5·25	17·00	4·43	182·00	45·83
receiv ed.													
17	5·56	15	4·95	15	4·45	18	7·36	12	3·52	12	3·24	134	37·96
17·00	5·56	15·00	4·95	15·00	4·45	18·00	7·36	12·00	3·52	12·00	3·24	134·00	37·96
17	5·98	11	4·67	10	3·04	15	6·82	12	3·51	12	2·52	110	33·36
15	5·63	17	3·63	13	4·72	19	7·99	15	6·29	15	3·03	138	42·57
32	11·61	28	8·30	23	7·76	34	14·81	27	9·80	27	5·55	248	75·93
16·00	5·81	14·00	4·15	11·50	3·88	17·00	7·40	13·50	4·90	13·50	2·77	124·00	37·97

Name of Station.	No. of Stations.	January.		February.		March.		April.		May.		June.	
		Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
I. DISTRICT "A"													
ST. MICHAEL.													
Lowlands ...	16	7·81	·83	9·63	1·05	14·25	1·91	4·25	·48	6·44	·78	11·81	2·28
II. DISTRICT "B."													
(*a*) CHRIST CHURCH.													
Lowlands ...	12	8·92	·98	9·92	1·31	14·58	2·51	6·42	·69	7·83	1·73	13·92	2·73
(*b*) ST. GEORGE.													
Highlands ...	5	11·40	1·24	12·00	1·97	15·40	3·91	8·40	1·65	13·20	4·81	15·40	3·69
(*b*) ST. GEORGE.													
Lowlands ...	4	10·25	·95	11·50	1·30	18·50	3·02	8·25	·95	9·75	1·72	14·00	2·95
III. DISTRICT "C."													
(*a*) ST. PHILIP.													
Highlands ...	1	8·00	·44	9·00	1·17	16·00	2·74	5·00	·93	9·00	1·37	11·00	1·95
(*a*) ST. PHILIP.													
Lowlands ..	12	7·08	·57	10·17	1·34	12·67	2·33	5·67	·86	9·17	1·44	13·08	2·81
(*b*) ST. JOHN.													
Highlands ...	10	9·20	1·31	11·20	1·83	13·10	3·92	6·50	1·48	9·20	1·54	11·50	3·08
(*b*) ST. JOHN.													
Lowlands ...	3	6·00	·94	9·33	1·19	11·67	2·24	6·67	1·00	5·67	·96	12·00	2·12
IV. DISTRICT "D."													
(*a*) ST. THOMAS													
Highlands ...	8	13·75	1·93	15·00	2·68	15·38	3·92	10·00	1·59	11·12	2·81	16·87	4·58
(*a*) ST. THOMAS.													
Lowlands ...	7	11·43	1·61	12·57	1·99	15·43	3·32	6·86	1·10	8·86	1·58	14·86	3·69
(*b*) ST. JAMES.													
Highlands ...	2	7·50	1·36	9·50	1·71	11·00	2·81	7·00	1·31	10·00	3·24	10·50	2·90
(*b*) ST. JAMES													
Lowlands ...	7	10·86	1·40	11·86	1·77	13·71	2·24	5·29	·59	8·28	1·56	14·29	2·94
V. DISTRICT "E."													
(*a*) ST. PETER.													
Highlands ...	6	7·33	1·87	9·50	1·51	11·33	2·41	5·00	·50	7·33	2·53	10·67	1·80
(*a*) ST. PETER.													
Lowlands ...	5	8·80	1·36	9·00	1·38	11·60	1·96	6·40	·81	7·00	2·43	13·40	2·25
(*b*) ST. LUCY.													
Lowlands ...	3	9·00	·71	6·67	·90	11·33	2·07	4·67	·25	8·33	1·34	8·67	2·51
VI. DISTRICT "F"													
(*a*) ST. JOSEPH.													
Highlands ...	3	10·00	1·40	13·67	1·86	14·00	3·26	7·67	1·41	13·00	2·37	12·67	2·64
(*a*) ST. JOSEPH.													
Lowlands ...	...	...	...	...	...	...	...	...	...	...	...	...	...
(*b*) ST. ANDREW.													
Highlands ..	1	8·00	·89	8·00	1·42	7·00	1·53	7·00	·71	5·00	2·17	10·00	2·16
(*b*) ST. ANDREW.													
Lowlands ...	2	4·00	·77	6·50	1·10	5·50	1·91	3·50	·55	6·50	2·51	12·50	2·22
	107	159·33	19·56	185·02	27·48	232·45	48·01	114·55	16·86	155·68	36·72	227·14	49·10
	...	8·85	1·09	10·28	1·53	12·91	2·67	6·36	·94	8·65	2·04	12·62	2·73

FROM JANUARY TO DECEMBER 1921.

July.		August.		September.		October.		November.		December.		Totals.	
Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
13·44	3·96	14·19	3·49	13·37	5·31	20·44	6·09	12·81	3·80	11·62	2·93	140·06	32·91
13·50	4·40	14·83	4·00	13·67	4·36	17·50	6·64	12·83	4·46	12·75	3·20	146·67	37·01
19·60	6·29	16·20	5·19	15·60	4·75	20·40	6·56	19·40	5·22	18·00	4·42	185·00	49·50
15·75	6·34	15·50	4·06	14·75	5·86	18·00	7·03	14·00	4·13	14·75	3·60	165·00	40·91
16·00	4·62	18·00	3·83	15·00	3·78	21·00	6·23	19·00	3·27	17·00	3·32	164·00	33·65
14·58	5·09	15·33	3·57	13·92	4·61	17·67	6·44	13·66	3·09	13·58	3·11	146·58	35·26
15·00	6·00	14·00	4·61	12·90	4·07	17·30	7·44	15·10	4·37	15·90	4·08	150·90	43·73
12·38	4·98	14·33	2·83	11·00	3·09	16·33	6·48	15·00	3·82	13·67	2·87	134·00	32·52
18·62	7·24	18·13	6·12	15·50	5·57	20·63	8·12	16·75	7·08	17·13	4·76	188·88	56·20
17·86	5·94	16·28	5·94	14·57	5·59	18·00	7·85	17·71	5·77	17·14	4·73	171·57	49·11
16·00	5·86	15·00	4·90	15·50	5·98	20·50	8·57	14·50	7·12	15·00	4·18	152·00	49·94
15·14	4·82	15·43	5·78	15·00	5·51	19·43	7·38	15·57	5·24	14·71	4·00	159·57	43·26
16·00	5·53	14·50	4·30	13·50	3·96	20·67	7·08	15·17	3·73	15·17	3·00	146·17	37·22
17·00	5·13	15·20	4·50	16·00	4·63	19·60	7·23	14·00	3·64	14·60	2·76	152·60	38·08
12·00	4·97	14·00	3·02	13·67	3·37	20·00	6·05	14·33	3·36	12·33	3·29	135·00	31·81
18·33	5·61	19·67	4·87	15·66	4·83	23·00	7·89	17·33	5·25	17·00	4·43	182·00	45·83
...	...	...	...	...	...	...	...	...	...	...	...	...	...
17·00	5·56	15·00	4·95	15·00	4·45	18·00	7·33	12·00	3·52	12·00	3·24	134·00	37·96
16·00	5·81	14·00	4·15	11·50	3·88	17·00	7·40	13·50	4·90	13·50	2·77	124·00	37·97
284·15	97·15	279·59	80·11	256·11	83·60	345·47	127·84	272·66	81·77	265·85	64·69	2778·00	732·90
15·79	5·40	15·53	4·45	14·23	4·64	19·19	7·10	15·15	4·54	14·77	3·59	154·33	40·72